

Workshop on Aquaculture Data Collection

**15 -19 June 2015
Gdynia, Poland**

Table of contents

Executive summary.....	3
1 Conclusions and Recommendations.....	5
2 Introduction.....	7
2.1 Background.....	7
2.2 Presentations.....	7
3 Response to the Terms of Reference.....	8
3.1 ToR 1: Requirements of the data call and quality checks – major issues faced and possible improvements.....	8
3.2 ToR 2: Definition of primary activity and how it applied by MSs.....	10
3.3 ToR 6: Evaluation of STECF-15-01 suggestion that DCF data collection should be confined to commercial production and/or appropriate thresholds should be implemented as it is proposed in fisheries. Group should also consider that there is a need to have information on the production of new species, as there is special support for this kind of activities in the EFF and EMFF, which needs data for assessment.....	10
3.4 ToR 3: Defining the criteria for the allocation of enterprises to the particular aquaculture segments in cases when few different techniques are used and/or different fish species are produced.....	12
3.5 ToR 4: Harmonisation of conversion indexes used for estimation of weight of sales of hatcheries and nurseries production from the number of fry for each species and their age rate.....	14
3.6 ToR 5: Evaluation of possibility to collect data for Eurostat and DCF through the same data collection system and questionnaire allowing for the gradual alignment of the Eurostat and DCF data collection systems.....	16
3.7 ToR 7: Expected amendment and extension of Aquaculture Data Collection in the future DCMAP.....	19
4 Response to DGMARE questions.....	19
4.1 Summary of MS representative responses to DGMARE questions.....	19
4.2 Data call (improvements?).....	20
4.3 How feasible is it to collect Eurostat and DCF data on a single questionnaire?.....	21
4.4 Do you collect at national level information on Medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record? What are the practicalities?.....	25
4.5 What can we do to collect info on production of new species?.....	28
Appendix 1. Terms of references.....	31
Appendix 2. Agenda of Workshop on Data Collection.....	32
Appendix 3. List of Participants.....	34
Appendix 4. Presentations of DGMARE, Eurostat and JRC representatives.....	35
Appendix 5. Proposed codes for the economic variables and segments names.....	37
Appendix 6. Presentations of Member States.....	40
Appendix 7. Conversion factors.....	48

Executive summary

The workshop on aquaculture data collection was held at the National Marine Fisheries Research Institute in Gdynia, Poland. The terms of reference for the meeting and the adopted agenda are given in Appendix 1 and 2. Twenty five experts from 16 Member States attended the meeting, together with representatives of the European Commission, DG-MARE, Joint Research Centre and Eurostat. A list of participants is given in Appendix 3. Furthermore all documents are in a WS Shared Folder.

HTTP: <https://workshop.mir.gdynia.pl:7001>

LOGIN: workshop

PASSWORD: mir.2015

This workshop aimed to exchange experience and discuss a number of economic variables not clearly specified by the DCF.

ToR 1: Requirements of the data call and quality checks – major issues faced and possible improvements:

A presentation was given by the Joint Research Centre (JRC) about the requirements of the next Aquaculture Data Call, the proposed changes and the quality checks.

There were no comments by the group but the quality check tools and reports were welcomed.

ToR 2: Definition of primary activity and how it applied by MSs:

The group discussed how the population defined in the DCF framework can be complemented by appropriate NACE codes, legal and other auxiliary registers. With reference to ‘primary activity’, it was recommended that MSs be allowed to operate a mechanism to disaggregate the aquaculture component of complex enterprise data, for inclusion into the aquaculture population.

ToR 3: Defining the criteria for the allocation of enterprises to the particular aquaculture segments in cases when few different techniques are used and/or different fish species are produced:

The MSs presented their methods for allocating enterprises into DCF segments. Several different methods are used and there may be a need for harmonisation, depending on what the Commission wants the DCF statistics to reflect.

ToR 4: Harmonisation of conversion indexes used for estimation of weight of sales of hatcheries and nurseries production from the number of fry for each species and their age rate:

The MSs presented their conversion indexes used for estimation of weight from reported numbers individuals sold. It showed large differences between MS in indexes used even for individuals of

the same species and age. It was concluded that this is due to variation in climate and production methods among MS.

ToR 5: Evaluation of possibility to collect data for Eurostat and DCF through the same data collection system and questionnaire allowing for the gradual alignment of the Eurostat and DCF data collection systems:

The representative of Eurostat gave a presentation on differences and possible harmonisation between Eurostat and DCF. Decisions that need be taken are: Does an alignment make sense? Would it reduce the burden for MS? Are details on ornamentals and production for stocking needed or not? Can hatcheries and nurseries production be dropped from statistical data?

ToR 6: Evaluation of STECF-15-01 suggestion that DCF data collection should be confined to commercial production and/or appropriate thresholds should be implemented as it is proposed in fisheries. Group should also consider that there is a need to have information on the production of new species, as there is special support for this kind of activities in the EFF and EMFF, which needs data for assessment:

The group discussed the purpose and feasibility of introducing thresholds. It was suggested that thresholds may be useful for sampling data, but not when scaling up to the total population.

ToR 7: Expected amendment and extension of Aquaculture Data Collection in the future DCMAP:

The DG MARE representative requested MS feedback on four questions:

1. Data call (improvements?)
2. How feasible is it to collect Eurostat and DCF data on a single questionnaire?
3. Do you collect at national level information on Medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record? What are the practicalities?
4. What can we do to collect info on production of new species?

The MSs provided written answers for the questions. The answers will be useful in DG MARE's ongoing work with the DCMAP.

1 Conclusions and Recommendations

ToR 1: Requirements of the data call and quality checks – major issues faced and possible improvements

The current template does not allow provision of quality data at the segment level. The group agreed with the need to change the uploading template and proposed codes for the economic variables and segments (see Appendix 5). The group also recommended providing codes for tuna, eels and polyvalent multispecies segments, to allow MS to provide data and solve the issue of attribution of enterprises using multispecies/multi-techniques production. The new codes and templates should be made available on the DCF web-site prior the data call. MS also expressed concerns about the stability of the data calls.

It was recommended to keep the data provision as stable as possible and avoid any further change in timing and coding.

ToR 2.: Definition of population primary activity and how it applied by MSs.

Conclusions:

1. A common approach for aquaculture data collection has not been adopted across MS due to difference between Eurostat and DCF regulations and their interpretation.
2. According to most of the MS presentations on aquaculture population, the list of enterprises is a Business Register updated using License/ Veterinary Registers or other legal sources, providing additional information on activity level.
3. It was concluded that the presence of livestock, labour input, or site licensing are more appropriate indicators for defining active enterprises than turnover within the population.

Recommendations:

1. Clearer definitions of the population are needed in Eurostat and DCF legislation , to increase comparability of the data collected.
2. Due to the recent changes in the NACE code, it is recommended to change the current definition of DCF in the future DCMAP to ‘enterprises whose primary activity is defined according to the Eurostat NACE codes 03.21 and 03.22 and who operate for profit’.
3. The population could further be updated by other sources:
4. enterprises approved by the relevant legal authority to operate in aquaculture sector.
5. enterprises which are endeavouring to produce profit by current aquaculture activity.
6. It is recommended to define primary activity as the main activity of an enterprise that produces the greater share of the overall turnover of that enterprise.
7. In the case of enterprises whose aquaculture production is not the primary activity, but which contribute a significant share of production to the MS/segment, it is logical to include them in the population. MS should operate a mechanism to disaggregate the aquaculture component.
8. The group was recommended to use the shared folder for the purpose of exchange of national implementing methods under the PGECON shared point and hosted by JRC for improving quality of data.

ToR 3: Defining the criteria for the allocation of enterprises to the particular aquaculture segments in cases when few different techniques are used and/or different fish species are produced

Conclusion:

Several different methods are used to allocate enterprises to particular segments and there may be a need to harmonize methods, depending on what the Commission wants the DCF statistics to reflect.

Recommendation:

In such cases it is recommended to apply one of two methods:

- either use production unit/establishment level to allocate the data instead of enterprise level
- or create a new polyvalent segment where enterprises without a dominant production segment could be allocated.

ToR 4: Harmonisation of conversion indexes used for estimation of weight of sales of hatcheries and nurseries production from the number of fry for each species and their age rate

Conclusion:

Harmonisation of conversion indices across MS is considered inappropriate.

Recommendation:

MSs needing to develop conversion indices are advised to review methods already in use in other MSs (Appendix 7).

ToR 5.: Evaluation of possibility to collect data for Eurostat and DCF through the same data collection system and questionnaire allowing for the gradual alignment of the Eurostat and DCF data collection systems.

Conclusion:

Most MSs are currently avoiding duplication of data collection. In a minority MSs, Eurostat and DCF data are collected by two different institutions and contain different information which is available at different periods of the year; therefore it is not feasible to combine data collection into one single questionnaire.

Recommendation:

The MSs should make an effort not to collect the same data twice.

ToR 6.: Evaluation of STECF-15-01 suggestion that DCF data collection should be confined to commercial production and/or appropriate thresholds should be implemented as it is proposed in fisheries.

Conclusions

1. According to MS presentations there are no specific common thresholds, reducing the active population applied in MSs.
2. The total population in most cases is less than 1000 which is considered manageable by census for production data and sample survey for collecting economic data.
3. Some MS reduce the population of the aquaculture sector by applying restrictions.
4. Enterprises can only be included if financial accounts are available.
5. The estimation procedures allow MS to raise the data collected through survey to the segment/national total level, covering the whole population.

Recommendation:

1. Exclusion of small/minor activity enterprises may reduce the variation of the data collected, and will only have a minor impact on overall results when aggregated and scaled up. Whenever the threshold is used it has to be justified.
2. In some cases where the accounts of most of the enterprises are not available, MS can reduce the extent of data collected.

ToR 7: Expected amendment and extension of Aquaculture Data Collection in the future DCMAP.

Conclusion:

With the increase of coverage of aquaculture data collection to fresh water the segmentation will be changed, including Eurostat techniques.

Recommendation:

MS have to prepare for changes and adjust their sampling schemes in the future.

2 Introduction

2.1 Background

The Planning Group on Economic Issues (PGECON) in its 3rd meeting (March 31 - April 4, 2014) proposed to organize a workshop on “Aquaculture Data Collection”. The workshop recognises the need to improve the methods for Aquaculture Data Collection and harmonize data collection methods across MS.

2.2 Presentations

The representatives of DGMARE, Eurostat and JRC delivered the following presentations as an introduction to the work of WG (see Appendix 4):

Expected amendment and extension of Aquaculture Data Collection in the future DCMAP (presentation by DG MARE)

Possibilities to harmonize Eurostat and DCF data collections (based on STECF 15-01

recommendations) (presentation by Eurostat)

Requirements of the data call, future changes and quality checks (presentation by Arina Motova)

PGECON 2015 recommendations of changes in the future Aquaculture Data Call

New codes and procedures

Presentation of the threshold application in agriculture (FADN) and possibilities to stratify data using thresholds as in fisheries.

The representatives of MS delivered presentations as national approaches taken in the topics related to the ToRs (see Appendix 6).

3 Response to the Terms of Reference

3.1 ToR 1: Requirements of the data call and quality checks – major issues faced and possible improvements.

A presentation was given by the Joint Research Centre (JRC) about the requirements of the next Aquaculture Data Call, the proposed changes and the quality checks. JRC proposed to change the current templates from horizontal to vertical. The proposed templates will include quality information at segment level, as it was unclear how to report quality information within the current templates. Hence, the need arose to change such templates and move toward standardized approach to all data calls.

It is also proposed to introduce new codes including acronym, species group, aquaculture technique and environment. A list of proposed codes was presented to the participants. The new codes for segments of aquaculture will consist of a combination of the following two codes:

- Technique - 3 letter code and
- Species group – 4 letter code

The three letter fish species coding used for DCF Aquaculture Data Collection is the same as the FAO coding. In the new data provision template only codes are to be used. The template will be a long list instead of a horizontal table with predefined list of segments on the right.

Additional changes being proposed is that the unit of weight will be reported in kilograms (KG). The reason is that some quantities are reported as zero due to the small amount being reported as tonnes, and rounding of prices and tonnes can change results completely. There will also be different templates for each variable in order to have a common approach between the data calls. This will include templates for income, expenditure, employment, capital, structure, production and production by species. The templates will be available on the DCF web site before the data call.

There were no objections to the proposed changes. However the working group discussed the following key issues:

- The possibility of using FAO 3 alpha code for species group as it was noted that having more than one coding list might be confusing for Member States (MS). Hence, it was suggested to have uniform codes between different organisations. JRC explained that the system is being built to have similar codes and consistency. However, DCF species groups do not match FAO 3 alpha codes (e.g. salmon and trout are from the same family and sea bass and sea bream are from different families, but included under the same species group).
- The possibility to use the same codes for production technique as the Eurostat was also discussed. However within the current legislation the only DCF production technique corresponding with Eurostat is cage farming and the new proposed code is in line with the one used by Eurostat.

There is a possibility to harmonise the DCF and Eurostat technique codes in the new DCMAP .

- Time series - it was noted that during PGECON, the group also considered that significant additional work will be imposed on MS if the aquaculture data call requires reworking of quality information for previous years (2008-2012).
- Separation of tuna and eels is requested by the Guidelines on Data Collection. A polyvalent segment is needed to allow MS to report data for segments which don't have an identifiable dominant technique/species group. Therefore additional codes for tuna, eel, and a polyvalent segment/technique/species group are needed.

JRC explained the four levels of quality checks being applied to the data reported by each MS. These include: syntactic checks, exploratory data analysis, tableau checks and finally through STECF expert working groups when reports are being compiled using data provided by the MSs.

- Syntactic checks are carried out during the uploading processing by using the 'DV tool'. Such checks cover codification s, duplication of records, inter- columns and inter- worksheets.
- The exploratory data analyses are performed using R script. Data is imported from the database, reprocessed and analysed. This provides a higher level of data coverage, identifying outliers and inconsistencies in time series. The outcome of this check is sent to MS for evaluation and correctness of data as highlighted in the report.

The tableau check was introduced this year to visualise the data online. This tableau provides a graphical overview of the data submitted which can be checked and reviewed by the MS. The tableau covers the uploading review, timeliness, coverage, quality, data and charts.

- The final check is carried out by STECF working group when working with the data. The exploratory data analyses and the tableau are used at this stage.
- There were no comments by the group but there was a positive welcome to the quality check tools and reports.

3.2 ToR 2: Definition of primary activity and how it applied by MSs.

3.3 ToR 6: Evaluation of STECF-15-01 suggestion that DCF data collection should be confined to commercial production and/or appropriate thresholds should be implemented as it is proposed in fisheries. Group should also consider that there is a need to have information on the production of new species, as there is special support for this kind of activities in the EFF and EMFF, which needs data for assessment.

During the small group discussions on ToR2 and ToR6, it was agreed that they are closely related together, therefore the following text reflects both ToRs.

From the presentations (by MS, DG Mare and Eurostat) a state of confusion emerged about the population of aquaculture enterprises that should be covered by DCF:

- Should only commercial enterprises producing for human consumption be included (i.e. those eligible for EFF/EMFF grant funding), are non-commercial (restocking) producers included if culturing “managed” species, or are all aquaculture producers (including ornamental) included as per NACE code 05.02 (revised NACE 03.21 and 03.22) specified in the DCF regulation?
- Should all enterprises be included irrespective of size, or should minimum enterprise size thresholds be applied to focus on the industrialised sector and manage the scale of the data collection exercise?
- Should enterprises be excluded if they report no production in year?
- Should enterprises be included if aquaculture is a secondary business activity?

These questions seem to arise largely from differences in coverage between Eurostat and DCF regulations. Differences in the legislations and their interpretation mean a common approach has not been adopted across EU23. This situation might compromise data compatibility. Therefore clearer guidance/best practices for the aquaculture data collection is needed to increase comparability of the data collected.

The group was also informed that the shared folder for the purpose of exchange of national implementing methodologies was created under the PGECON shared point and hosted by JRC. MS are invited to use this folder to exchange their national implementing procedures (can be in native languages) and obtain information on what other MS are doing and how they handle similar problems.

The population for Aquaculture Data Collection is defined in the Commission Decision 2010/93/EU as ‘enterprises whose primary activity is defined according to the Eurostat definition under NACE Code 05.02: ‘Fish Farming’’. Due to recent changes in the NACE code it is recommended to change it in the future DCMAP to ‘enterprises whose primary activity is defined according to the Eurostat NACE codes 03.21 and 03.22 and who operate for profit’.

According to the most of the MS presentations, the aquaculture population is as in a Business Register updated with other complementary sources such as License/ Veterinary Registers, or

other legal sources which provide additional information on activity level. The population should also consist of active enterprises. An active enterprise is one that is endeavoring to produce profit by current aquaculture activity. According to the MS presentations, some MS exclude enterprises that do not report sales in the reference year, as they are defined as inactive. However, as aquaculture production cycles frequently exceed 1 year, sales are a poor indicator of activity. It was suggested that the presence of livestock, labour input, or site licensing are more appropriate indicators for inclusion within the population.

Following discussion, the group recommended that primary activity in the DCF is to be defined as the main activity of an enterprise that produces the greater share of the overall turnover of that enterprise.

Some countries are including enterprises whose aquaculture production is not the main activity, because of their importance to the segment. For the purpose of data collection, such MS will operate a mechanism to disaggregate the aquaculture component of complex enterprise economic data to the point where it satisfies the requirements for inclusion into the aquaculture population.

In a sector as diverse as the EU aquaculture MS have adopted individual and pragmatic approaches suited to their countries' aquaculture structure in defining the population of enterprises and thresholds for inclusion/exclusion. According to MS presentations there are no specific thresholds, reducing the active population applied in MS.

Points to emerge with respect to the population of aquaculture enterprises covered by the DCF were:

- The total population is <1000 in most MS which is generally considered manageable by survey or census.
- Production data is usually collected by census and complemented by the economic data which is collected by sample survey.
- Some MS reduce the population of the aquaculture sector by applying restrictions, e.g. the UK targets only major segments and omits minor segments, but covers 98% of production in so doing.
- Points to emerge defining the sampling frame in the data collection were:
- Most MS apply an inclusion criteria requiring aquaculture to be the main activity of an enterprise.
- Enterprises can only be included if financial accounts are available. However the estimation procedures allow MS to raise the data collected through survey to the segment/national total level, covering the whole population.
- Exclusion of small/minor activity enterprises may reduce the variation of the data collected, and will only have a minor impact on overall results when aggregated and scaled up. However in the case of shellfish where most enterprises in the same segment could be micro the extent of data collected can also be simplified. For example, micro-enterprises in the Portuguese on-bottom culture segments are provided with questionnaires requesting only basic economic information.

3.4 ToR 3: Defining the criteria for the allocation of enterprises to the particular aquaculture segments in cases when few different techniques are used and/or different fish species are produced.

Comparing Member States, all of them are using as first criteria the species and the techniques, depending on the Decision 2010/93/UE.

Country	Allocation of enterprises
Finland	The allocation of the enterprises is segmented according to the production technique and environment
Estonia	The segmentation is according to the techniques
Spain	The allocation depends on the value of the production of the species, when there is more than one farmed species.
Latvia	The allocation of the enterprises is segmented according to the species and the techniques. Further there is a stratification for the size of the enterprise.
Denmark	The allocation depends on the value of the production of the species, when there are more than one farmed species.
France	Freshwater: Enterprises are segmented according to the species and the techniques with a control not to change the segment between different years. Marine aquaculture: Enterprises are segmented according to the species and the technique but statistical confidentiality situations force some companies to be allocated in a different segment. Shellfish sector: % of income and after the enterprise is allocated in its segment for the main technique.
Ireland	Enterprises are segmented according to the species and the techniques. However, if an establishment is farming one species with two techniques production is divided into the appropriate segments.
Italy	A minimum of units is required to consider a segment in the sampling plan (5 units)/ In the same segment there are companies with a very different structural and different characteristic
Malta	Enterprises are segmented according to the species farmed. The segment is very homogeneous
Poland	Enterprises are segmented according to the species farmed. The segment is very homogeneous
Croatia	Enterprises are segmented according to the species farmed and the techniques
Slovenia	Enterprises are segmented according to the species farmed and the techniques
Portugal	Data are collected by establishment. Each establishment is allocated to a segment based on the species and techniques.
Hungary	There is no segmentation
Lithuania	Enterprises are segmented according to the species farmed and the techniques
United Kingdom	Enterprises are segmented according to the species farmed and the techniques

Some MS have particularities because the same farm can have more than one species /techniques as happens in: Denmark, Spain, France and Portugal. These MS have to use secondary criteria to allocate companies.

Country	1° criteria	2° criteria
Finland	species and technique	environment
Estonia	species and technique	
Spain	species and technique	Turnover
Latvia	species and technique	Size of the enterprise (employment)
Denmark	species and technique	Turnover
France	species and technique Marine aquaculture: statistical confidentiality situations force some companies to be allocated to a different segment. Only for Shellfish sector : % of income	Only for Shellfish sector : technique
Ireland	species and technique	But if an enterprise is farming more than one species groups/techniques, economic variables are divided into the appropriate segments based on share of turnover attributed to each segment.
Italy	species and technique	
Malta	species and technique	
Poland	species and technique	
Croatia	species and technique	
Slovenia	species and technique	
Portugal	species and technique	
Hungary	There is no segmentation yet	
Lithuania	species and technique	
UK	species and technique	

Conclusions

- Data are collected in three ways: from production units (establishments) (e.g. Portugal, Spain) which later are aggregated, in a mixed way (e.g. Ireland and Lithuania) or directly from enterprises.
- Enterprises can have several production units using different techniques/species and the segment to allocate them must be chosen.
- Where a secondary criteria for allocation is used by the countries it can be difficult to compare the same segment across different MS.
- The mixing of species in one segment produces distortions in the case of Spain.

- New segments must be created for the new species: seaweeds, other molluscs, other invertebrates.

Options

- Using the production unit (establishment) instead of the company for the segmentation
- In order to have homogenous, comparable aquaculture segments it is proposed to create new polyvalent segment (one for fishes, shellfish...or farming techniques) where enterprises with non-dominant multiple activities could be allocated. In this case one can compare all the segments among MS, except the polyvalent ones.

3.5 ToR 4: Harmonisation of conversion indexes used for estimation of weight of sales of hatcheries and nurseries production from the number of fry for each species and their age rate.

Background

Many enterprises, particularly hatcheries and nurseries, report sales output as a number of individual animals. Also the input of livestock (raw material volume) to on-growing farms is often reported by number. DCF data providers need to be able to convert such numbers of animals to weight, as required by DCF. The question was raised whether common conversion indices could be applied across MS to harmonise conversion.

Review

MS representatives were asked to provide information on conversion indices and to tabulate (where possible) number-weight conversion indices used to prepare DCF submissions. Feedback can be summarized as:

- Conversion indices not applicable to MS aquaculture industry as no juvenile production: HR, SI
- Conversion indices not used as data requested and supplied as weight: PT
- Conversion indices applicable, but no data available: IE, MT, LT, SE (?)
- Conversion indices provided: DK, ES, FI, FR, PL, IE, UK (collated in Appendix 7).
- Conversion indices provided only for restocking fish juveniles: EE, LV
- No feedback: HU

Where information on conversion indices was provided, different values are applied to each accounting class within a species. However, a wide variety of different descriptors are used to account for different classes of juvenile production, i.e.:

- Age classes in months
- Age classes in years
- Farm stage classes
- Life history classes, e.g. fry, fingerling, smolt
- Size classes, i.e. weight ranges from 0 to more than 1300 g

Summary of application of some species juvenile conversion indices used across MS.

Species	Descriptor used to categorize output/input				Conversion index range: g/individual animal	Other
	Farming cycle phase	Life cycle, age	Weight class	Not applicable		
Atlantic salmon	ES	LV, PL, UK, EE, FI, IE			0.007 - 80.0	
European sea-bass	ES		FR		3 - 10	
Gilthead sea-bream	ES		FR	PT	3 - 15	
Rainbow trout	ES	PL, UK, DK, IE	FR, FI	LV	0.06 - 50	
Atlantic bluefin tuna				HR		
Trouts nei		PL			1.5 - 10	
Pacific cupped oyster	ES	UK, IE	FR		0.5 - 1	
Mediterranean mussel	ES		FR		0.15 - 1	
Blue mussel		DK, IE	FR			FR: g/m rope

The lack of consistency in accounting classes between species and MS is attributed to differences in species, types of aquaculture activity (i.e. for sale or restocking), culture systems, culture methods, growth rates and traditions. Accounting classes can even vary within a species within a MS: for example farm-specific conversion indices are applied in Finland.

Conclusion

As there is no consistent accounting class terminology across species or MS, conversion indices suited to responses from the local industries have been developed. Harmonisation of conversion indices across MS is therefore considered inappropriate. MS needing to develop conversion indices are advised to review methods already in use across MS (Appendix 7).

Additional information: To assist economists developing conversion indices, explanations of life stage classes are provided below. Please note usage varies between species and regions.

- **Ova:** Finfish eggs. In salmonids, called “green ova” and then “eyed ova” once black pigmented eyes visible.
- **Fry:** juvenile stage of finfish. Size typically 0.6-10 g in trout.
 - **Yolk-sac fry.** Newly hatched embryo with yolk-sac. In salmonids termed “alevins”
 - **Swim-up fry:** Stage of first feeding in salmonids.
- **Fingerling:** Juvenile finfish approximately the size of a human finger, typically 10-40 g in trout.
- **Parr:** Specific term for juvenile salmonids encompassing the fry and fingerling stages.

- **Smolt:** Specific term for juvenile salmonids that have undergone changes enabling survival in seawater. Salmon smolt are typically 40-120 g. Smolt may be sub-divided by age:
 - S0 (=S¹/₂) <12 months old, i.e. put to sea in calendar year of hatch.
 - S1: 12-18 months old, i.e. put to sea in January-June in year post hatch;
 - S1¹/₂: 19-24 months old, i.e. put to sea in July-December in year post hatch;
 - S2: >24 months old when put to sea
- **Seed:** juvenile stage of bivalve for on-growing to harvest. Encompasses wide size range.
 - **Spat:** early juvenile stage that have recently undergone metamorphosis and settled.

3.6 ToR 5: Evaluation of possibility to collect data for Eurostat and DCF through the same data collection system and questionnaire allowing for the gradual alignment of the Eurostat and DCF data collection systems.

A presentation on differences and possible harmonisation of Eurostat and DCF, following the discussions of the STECF Expert Working Group (EWG14-18), was given to participants by Eurostat. The Court of Auditors had complained about overlap and incomparability of Eurostat and DCF data. It recommended improving the comparability, accuracy and completeness of statistical aquaculture data. The only two similar variables between Eurostat and DCF are volume of sales and turnover. However Eurostat and DCF calculate these two variables differently.

The main differences between Eurostat and DCF are highlighted below:

	Eurostat Collection	DCF Collection
Reference year	Calendar year	Accounting year
Data providers	Mostly national statistical institutes	Scientists/national institutions
Sampling population	All aquaculture facilities	Enterprises with aquaculture as "main activity"
Coverage	Food fish products and eggs/juveniles	All uses incl. ornamental and juveniles
Dimensions	Fresh- and saltwater; FAO Major areas for main production	Saltwater obligatory, freshwater is optional
Segmentation	ASFIS species list; Methods= aquaculture techniques	Species groups & Farming techniques
Variables	Production by volume and value	Economic variables & sales by volume and value by species
Confidentiality	Confidential data is reported and could potentially be used to calculate totals	Some economic data per segment is not reported.

Hatcheries and nurseries	Nurseries only via number of sold eggs and juveniles per species	Covered as enterprises
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Eurostat indicated that in a future revision of the statistical regulation, thresholds may be introduced. Among the issues to be solved for successful harmonisation of DCF and Eurostat data are: the alignment of the population/aquaculture entities; the segmentation of species and techniques; the concepts, definitions and classifications; data quality and methodology; thresholds and data protection; and confidentiality treatment. Eurostat also noted that proportionality and reduction of burden should be ensured in this future revision and international comparability needs to be maintained since Eurostat have to be in line with FAO.

Eurostat explained that The STECF Expert Working Group (EWG 14-18) had been requested to:

- Develop a single framework including segmentation and population
- Analyze what changes to DCF collection are needed to use the aquaculture production statistics and ensure harmonisation
- Analyze which adjustments may be required from the statistical regulation
- It was also pointed out that DCF collects data at enterprise level (as the legal unit) while Eurostat collects data at farm level (production unit). However this can be combined. It was argued by participants that some MS do actually collect data at farm level and subsequently compile the segment level required by the DCF.

The following are the matters which are still not resolved:

- Whether production should be separated as food and non-food uses.
- Hatcheries and nurseries- whether this segment can be maintained at DCF level since data quality at Eurostat level is weak or whether to maintain at Eurostat and complement with import data and studies on market structure to make use of the data.
- Seaweeds- whether to be included in DCF or not.

Decisions need to be taken now: Does an alignment make sense? Would it reduce the burden for MS? Are details on ornamentals and stocking production needed or not? Can hatchery and nursery production be dropped from statistical data?

There had been agreement that it should be left to MS's discretion to decide whether to use the accounting year or calendar year as the reference year for the economic data collection.

The following were the key issues discussed during this presentation:

- It was suggested to have same questionnaire for the two purposes (production data and economic data) .
- The scope of DCF is to economically analyse the aquaculture sector and hence DCF focuses on the population whose primary activity is aquaculture. It is up to MS how to define the data collection and not to double collect the data.

- It is possible to harmonise the data collected by most MS for Eurostat and DCF. Eurostat requests data from a broader population than DCF. DG Mare should indicate clearly the purpose for which the data are being collected. If any of the data is not used, it must be eliminated from the collection.
- Ornamental aquaculture is included in the DCF and excluded from Eurostat. Such data is mainly requested by FAO to have an overview of ornamental aquaculture on a global level. However, ornamental aquaculture exists in Asian and American markets and hence it is questioned whether there is a market for this type of aquaculture in Europe

Possible future organization of the data collection system for Eurostat and for DCF by MS:

- Agreement that a certain harmonisation both of definitions and of segmentation would be useful. At least it would help data users to understand and join both data sets. DCF should adapt to Eurostat in order to maintain the long time series of production data.
- From the data provider perspective, the pool of raw data is the same for both data collections.
- Differences between the production volume (Eurostat) and the volume of sales (DCF) are minor and mainly due to differences in the reference year (calendar vs accountancy year). It is arguable whether this difference matters taking into account that different enterprises use different accountancy years as well.
- Different opinions on whether the use of one questionnaire for both data collections is beneficial or not. This is mainly due to different methods of collecting the data either at production unit or enterprise level. The decision should be left to the MS. Each MS decides what it considers best. In any case, Eurostat data continue to be census data while DCF data, in most cases, are additional sample surveys.
- There seems to be little use of the Eurostat data on hatcheries and nurseries in numbers of juveniles. They may be dropped.
- The importance of including ornamentals is judged differently in different countries. The same is true for the stocking of lakes and rivers with adult fish.
- The possibility of collecting data along the same lines as FADN was discussed.
- It was questioned whether using the NACE 05.02 Fish farming as defined in the DCF regulation for identifying the population is appropriate. This code defines the population as:
 - *production of oyster spat, mussels, lobsterlings, shrimp post-larvae, fish fry and fingerlings*
 - *growing of laver and other edible seaweeds*
 - *fish farming in sea and fresh water including farming of ornamental fish*
 - *cultivation of oysters*
 - *service activities incidental to the operation of fish hatcheries and fish farms*

This class excludes:

- *frog farming,*
- *operation of sport fishing preserves.*

The NACE code referred to in the Commission Decision has been superseded.

3.7 ToR 7: Expected amendment and extension of Aquaculture Data Collection in the future DCMAP.

The DG MARE representative explained that the workshop follows the request by the Planning Group on Economic Issues (PGECON) to provide technical advice to improve the methods for aquaculture data collection and harmonize data collection methods across MS.

The DG MARE representative summarised the main policy uses of the DCF economic aquaculture data through the AER. The AER is a biannual publication that serves as a main reference for economic data and developments. An example of the policy uses of this data collection is some of the context indicators in the EMFF Operational Programmes.

The DG MARE representative presented some reflections based on STECF and PGECON recommendations in view of the new EU DCMAP. In particular, the alignment of segmentation with Eurostat is a priority (if possible and relevant by using one questionnaire for all data obligations on aquaculture). Certain variables under DCF currently collected should no longer be collected to avoid duplication and allow for this alignment. As a part of this alignment of DCF with Eurostat, it was suggested that current “farming techniques” included in the DCF Multiannual Programme (“hatcheries and nurseries”, “on-growing”, “combined” and “cages”) could be replaced by the following “aquaculture techniques” included in the (Eurostat) statistical Regulation (EC) No 762/2008 on aquaculture (“ponds”, “tanks and raceways”, “enclosures and pens”, “cages”, “recirculation systems”, “other methods”) as well as “combined” and “hatcheries and nurseries” which should be maintained from the current DCF.

The DG MARE representative raised the possibility of new variables in aquaculture, in particular environmental indicators. Synergies are sought concerning information which enterprises are already obliged to record (reduction of administrative burdens). This could be the case for use of medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record and could be asked for at the level of tonnes per MS.

The DG MARE representative requested MS feedback on the following questions:

Data call (improvements?)

How feasible is it to collect Eurostat and DCF data on a single questionnaire?

Do you collect at national level information on Medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record? What are the practicalities?

What can we do to collect info on production of new species?

4 Response to DGMARE questions

4.1 Summary of MS representative responses to DGMARE questions

Data call

For MS, consistency of the data call is of major importance. It is desirable for the data calls to change as little as possible between years and that they come at the same time each year. Although data calls will be launched every two years, MS will still collect data annually.

How feasible is it to collect Eurostat and DCF data on a single questionnaire?

For the majority of MS it does not seem feasible to collect Eurostat and DCF data within a single questionnaire since differences between Eurostat and DCF data collection are too large.

Do you collect at national level information on medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record? What are the practicalities?

The majority of MS indicated that although such data may be recorded at a farm or administrative level, it is not collated at a national level. Concerns were expressed that inclusion within the DCF survey could compromise response rates. It was suggested that other institutions may be more appropriate to collect such data if required by DG MARE.

What can we do to collect info on production of new species?

Although production data for new species is readily collected by most MS, confidentiality issues prevent publication due to the low numbers of enterprises. New species should be mentioned in the MS technical reports, but publication of production data and full economic assessment would require minimum number of enterprises to be exceeded.

The individual MS responses to DG MARE's questions are below:

4.2 Data call (improvements?)

Croatia

Additional attention will be made to collect data, especially for small-scale companies in marine aquaculture.

Since in Croatia there are different levels of enterprises with different accounting methods as per legal registration, guidelines for each of them need to be adjusted for data collection in the following years.

Denmark

For Denmark consistency is of major importance. We would like the data call to come at the same time each year and with as few changes as possible. This makes it easier to schedule our work throughout the year.

Finland

Data calls have been quite stable during the last years, which is a big benefit. It is desirable that the data calls will change as little as possible between the years.

Some minor notes:

In the data calls and use of data it should be noted that sales value and turnover are not necessarily the same. Depending on the data source, the turnover could include elements of other activities of the enterprise.

Extraordinary costs are asked in the data calls, but the information is probably not used in the analyses. It should be considered whether to ask for data that is not used.

France

Even if data call will be done every two years, France will continue to collect production data as well as economic data annually. Eurostat production data will be still required every year. This will permit France to follow the evolution of the enterprise population and validate economic data on a regular basis.

Poland

In order to improve data collection in Poland it is necessary to introduce mandatory data submission for freshwater species.

4.3 How feasible is it to collect Eurostat and DCF data on a single questionnaire?

Croatia

I think it makes no sense to connect the questionnaire because the difference between DCF and Eurostat data collection is too large.

The difference between the data to Eurostat and the DCF is in the segments and the purpose. Eurostat is oriented towards the perspective of human consumption, while the DCF views is from the perspective of the farm and profitability of individual segments and the entire sector. And then in this way segments of aquaculture are constructed which are not directly comparable.

It would be complicated to combine the questionnaires and we probably would have problems with data interpretation or with putting on the right form to be understandable for both sides.

Denmark

For Denmark it does not seem feasible to collect Eurostat and DCF data on a single questionnaire:

The Eurostat data is collected by the Danish Agrifish Agency as a census questionnaire to all production units.

The economic data for DCF is collected by Statistics Denmark as part of our national account statistics, and is conducted as a voluntary NSS survey, in which the data is collected electronically from the accountants of the companies who have agreed to participate.

As Eurostat and DCF data are collected from two different groups of people and contain different kinds of information which are available at different times of the year, it is not feasible to combine them into one single questionnaire.

Regarding differences in production volume and value between Eurostat and DCF statistics:

In the Eurostat statistics, only production volume and value at first sale is recorded, i.e. sales at the consumer level. This could also be regarded as *net production*.

In the DCF statistics the aim is to reflect the economic impact of the whole aquaculture industry. Hence, all sales are reported, even if the produce (e.g. fry or fingerlings) is sold to another aquaculture enterprise for on-growing. This is because the production of fry and fingerlings also represent economic activity that needs to be reflected if the aim is to reflect the impact of the whole aquaculture industry. What is reflected in the DCF could be regarded as *gross production*.

If it is a problem that production and value differ between Eurostat and DCF, one suggestion could be to rename the Eurostat variables to *Net production volume and Net production value*.

The DCF variables could then be named *Gross production volume and Gross production value*.

Estonia

The Eurostat production data is collected by Estonian Statistics Department from all aquaculture companies as census data by species. The DCF economic data is collected by Estonian Marine Institute using questionnaires sent by email to companies, with aquaculture as primary activity. This is done on voluntary basis. As DCF data requires a lot of additional information on economics, Estonian Statistics Department is not willing to include it in their questionnaire, therefore combining these two sets of information is not feasible at the moment. On the other hand, one combined questionnaire would be strongly preferred by fish farmers.

Finland

It is probably not useful to try to merge the questionnaires or to merge different collection. The question is not to harmonize the data collection practices, as there are different kind of registers, authorities, data collection practices and legislation in member countries. However, the best practices should be discussed, shared to be adopted where applicable.

Rather we should harmonize the information that is expected to be produced for different domains, for instance definition of the population, variables etc. It is also acceptable that there are different sub-populations (or variable definitions) for different domains, if the different information needs are justified. Then the different populations/variables should be defined consistently and taken into account for each other.

France

France is collecting data with two different processes: production and employment survey by direct questioning of all enterprises of the population, economic data collection on a sampling basis using mainly databases from accounting management centres. Questionnaire is used for production survey (by courier and online reply soon) while collection from accounting centres is done by table files exchange.

Eurostat request production data by species and by technique, an enterprise doesn't need to belong to some group to declare their production according to this scheme. DCF data collection is looking to economic variable by segment, however segments are defined. France is first deciding

to which segment an enterprise belongs, so that economic data are reported in the proper segment.

In this situation and with a different schedule for data call, a common questionnaire for Eurostat and DCF data doesn't seem to be appropriate.

Ireland

This is not only feasible but current practice by the MS. There is a short census form, consisting of questions that gather production and employment, as well as input volume and cost data. The census data can be used to satisfy all Eurostat requirements and the relevant DCF variables. The elongated sample form, in addition to the above, consists of operational costs questions. The 'Balance Sheet' or 'financial' variables, as well as some already covered by the census and therefore acting as validation tools, are extracted online from the Company Registration Office, at a later date. This approach is relatively free of complications due to the fact that the majority of Irelands aquaculture enterprises are stand- alone legal entities and furthermore, the majority are one-production unit entities. A potential weakness in the approach comes from the need to accurately disaggregate enterprise-level financial data to production-unit level, in the case of enterprises engaged in two or more Spp./culture methods.

Latvia

Data collection for EUROSTAT and DCF is integrated into the one questionnaire. Questionnaire uses the same concepts and definitions as the EUROSTAT and DCF legislation and the collected data for the two regulations are comparable.

Lithuania

Lithuania Agriculture information and rural business center gathers aquaculture data from one form, except aquaculture economics data. It is disaggregated data, therefore there is no problem to aggregate this data to Eurostat or DCF specifications. Consolidation of Eurostat and DCF data is possible if data uploaded to Eurostat would be disaggregated, so that DCF could take data from Eurostat and aggregate to their specific needs, and Eurostat could prepare data for their own needs. The problem lies that Eurostat would have even greater problem of confidentiality with disaggregated data, because there would be more data sets marked as confidential, and it would be impossible for Eurostat to aggregate and publish this data. Therefore, data harmonisation is possible only on Member State level, where from the same questioners MS can aggregate data to either Eurostat or DCF. That would improve data quality and leave timeline datasets intact in DCF and Eurostat.

Poland

After harmonisation of segmentation it will be possible to add socio-economic variables to the questionnaire RRW-22 entitled "Statement of the surface area of fish ponds and the number of fish produced in fish ponds and other facilities for rearing or cultivation" under the Public Statistics Research Programme and also used for preparing data submitted annually to Eurostat. The extension of the questionnaire will require the cooperation of the National Marine Fisheries Research Institute responsible for DCF and Inland Fisheries Institute responsible for the Public

Statistics Research Programme. Extension of the RRW-22 questionnaire must be approved by the Ministry of Agriculture and Rural Development.

Portugal

Portugal already integrates all the variables in one survey.

Slovenia

For Slovenia it is not feasible to collect the data on a single questionnaire. The Eurostat data are collected by the Statistical Office of the Republic of Slovenia, on the other hand DCF data are collected by the Fisheries research institute of Slovenia. Both organizations use different methods and approaches for collecting and calculating data and also follow different goals.

Spain

In Spain both surveys are programmed and developed at the same time, once a year, using the same population to research and with common field-work. The unit used as a population is the establishment for aquaculture.

There are two questionnaires, but applied at the same time and by the same person. So the only difference is the Activity survey is a census (all the establishment must answer this one), and the Economic survey is applied to a sample.

Really it can be combined in the same questionnaire.

Sweden

The Swedish data collection for Eurostat and DCF is partly complementary as it is now. Some of Eurostat data is used in DCF data collecting. Production is collected by Eurostat and economic data is collected by sample and taxation data. It might be made by one questionnaire if we change our methods of collecting data. In Sweden the same agency is doing all of the collection which might simplify the change if needed. But I don't really see the reason for change since the collections have different purposes. The methods of collection shouldn't be a problem as long as we are collecting the same data on a certain statistical level. The purposes of having less administrative burden can be discussed since we are doing a census on production which would make the burden of the census larger for both the respondents and administrators. There might also be a problem with accounting year vs. calendar year, although I'm not sure if this would be the situation.

United Kingdom

Although it is theoretically possible to collect Eurostat and DCF data within a single questionnaire, it would be resisted as it is likely to compromise the time-series of Eurostat data.

- Within the UK there is no national legislation obligating aquaculture enterprises to provide data, and data acquisition for both Eurostat and DCF is reliant on the goodwill of the industry.
- Eurostat (+ employment) data are collected annually in three separate long-standing censuses of the aquaculture industry within 1) Scotland, 2) England and Wales, and 3) Northern Ireland. The industry is familiar with the census, and cooperation and completion rate are extremely high. The industry recognises the value of the censuses and the collated data is fed back via national publications.

- DCF data requirements are more intrusive and extensive. DCF data has (for the last 3 years) been collected by a separate survey across all three regions. Industry cooperation has been poor with low completion rates.

4.4 Do you collect at national level information on Medicines, chemicals and mortalities (and escapees) on farms which producers are obliged to record? What are the practicalities?

Croatia

Croatia is preparing to improve the existing system of data collection, as we are still a new member of the European Union. Information about Medicines, chemicals and mortalities doesn't exist yet.

Denmark

This information is not collected on a national level but it may be collected by some regional or local authority.

Estonia

In Estonia aquaculture farmers being water consumers are obligated to fill out questionnaires sent by Environmental Agency. These forms include questions on medicines and chemicals used.

Finland

Concerning medicines, at least data on the use of antibiotics is collected (by the Finnish Food Safety Authority). The data source is the feed industry and wholesalers, which means that although the data is not fully captured, it does give a good overall picture of the development. This information is reported annually to the EU Commission.

Basically the aquaculture units should have onsite book keeping on the medicines and chemicals given to fish (for veterinary inspections/control visits). However, the information has not been collected to build up volume aggregates.

Mortalities and escapees data are not collected directly. The information probably could be estimated from the known stocks variations and sales? In Finland there is also information about damage and losses caused by seals to aquaculture stocks.

France

Regulation (EC) No 852/2004 and Directive 2006/88/EC are applied and production sites record medicine use and mortalities in their rearing register. Up to what we know today, there is no national project to collect these data from the establishments; we need to check more with the animal health and veterinary administration services. Diseases are followed by this administration with the help of Ifremer, a research institute, for marine shellfish sector.

For medicines, how easy is it to gather different kind of medicine and different type of formulation (tablets, powder, liquid...) for future comparison or study?

These variables belong to an animal health and sanitary subject, not really representing an economic criteria. Adding questions for these variables to the current production survey will probably not be welcomed by enterprises and response rate may be reduced.

Ireland

Data on the above variables are collected by the competent authorities and organised to a varying degree, depending on who is already requesting this data and statutory requirement. It is unclear therefore if some or all of these variable data have been collected /organised to national level or what procedures are required to enable those collecting for Eurostat and DCF to access the data. Issues of confidentiality and other sensitivities may need to be discussed between the competent authorities involved.

Latvia

Mortality is already counted. Aquaculture companies should to inform Food and Veterinary Service (FVS) if mortality rate exceeds a certain level and clinical signs indicate on notifiable diseases. If some kinds of infections are suspected analysis for situation determination has to be implemented (Council Directive of 21 December 1982 on the notification of animal diseases within the community (82/894/EEC). In case of high mortality all appropriate information are collected by FVS and these data cannot be compared with DCF data. In case of infection is impossible to collect data for all aquaculture production types (fry, fingerling, smolt etc.) and also collect data separately about rotten or spoiled aquaculture production.

The similar situation is with Medicines. Veterinary Medicines are controlled by Food and Veterinary Service (FVS). The information collected generally about medicines used in agriculture but information is not separated by different agriculture sectors (fishery, aquaculture, cattle breeding, farming etc.). The collected data are not comparable with DCP.

The substances like disinfectants are not especially counted at the any of the animal breeding areas. It can be traced by invoices or local accounting books for the registration of the disinfection procedures at nurseries. These books are not mandatory and the registration exists on voluntary base.

Lithuania

According to Lithuanian disease prevention program in aquaculture ponds, phosphate and nutrients used for aquaculture farms, and fish death data collection is conducted and some data are collected. Data collection and pond inspection is administrated by the Fisheries Department under the Lithuanian Ministry of Agriculture and the State Food and Veterinary Service.

Poland

Neither the National Marine Fisheries Research Institute nor the Inland Fisheries Institute have access to such data. However, there is a strong possibility that such data is collected by veterinary services.

Portugal

We do not collect these data, and perhaps the collection of this information may go in the opposite way of one the strategic guidelines for the sustainable development of EU aquaculture, which is to simplify administrative procedures.

However, we are already considering including mortalities and escapes variables in our questionnaire.

It should be noted that the competent national sanitary authority (DGAV) have implemented a National Plan for the medication-use control intended to farm animals. In conjunction with the national residue control plan, this guarantees verification of the conditions of use of medicines and the improper or illegal treatment of animals. However it is unknown how they collect and process this data.

So at the moment, we are not able to answer without contacting the national sanitary authority to evaluate the possible of discussions with DGRM on data collection.

Slovenia

No information is available on that kind of data.

Spain

May be it would be interesting to collect mortality data, leaks, losses in relation to the production but not in relation to health issues.

In any case, the information on escapes and treatments are collected by establishments registered in the "book of exploitation aquaculture", so that the producers could answer if asked.

It should also be taken into account, the reluctance that we would be faced by the respondents to answer questions about health issues, which could affect the proper functioning of the other two surveys (Economic and Activity).

Sweden

As right now I am not sure whether Sweden collects data or not on the subject. There are some old official data on usage of antibiotics (5 g active substance per tonne produced fish 2013). My colleague working in the area is not at work today and I can't specify it further. I will add the facts later on. My personal view is that it ought to be an obligation for collection of this kind of data but not reporting on the level suggested. A report should at least include:

mortality per species, mortality per farming technique, use of active substances/ton produced fish, total use of medicals and chemicals, use per species and per geographical area

United Kingdom

- *Data on medicine and chemical use, mortalities and escapes are not collated at a national level and practical difficulties are foreseen.*
- UK fish farmers are required to keep records of medicine and chemo-therapeutants, and records are inspected but not collated. Use of medicines is only allowed under veterinary prescription, and chemo-therapeutants require authorisation for discharge from the regional environmental agency. Please note that the European Medicines Agency (EMA) already conducts a European Surveillance of Veterinary Antimicrobial Consumption (ESVAC) to examine antibiotic usage in aquaculture (based on sales records rather than on-farm use records?)
http://www.ema.europa.eu/ema/index.jsp?curl=pages/regulation/document_listing/document_listing_000302.jsp . The EMA is a more appropriate body to address medicine and chemical use in aquaculture than DCF.

- Under aquatic animal health regulations, finfish farmers are required to keep appropriate records of mortalities, and both finfish and shellfish farmers are required to report unexplained mortality events. However, routine mortality data are rarely collated by farmers, and are not collected by the fish health authorities who simply inspect records. For the Scottish salmon industry, national estimates are made of survival in freshwater (hatchery/nursery) and seawater (sea-cage), derived from total numbers reported in the census of: ova laid down; smolts produced; smolts put to sea; production fish harvested (<http://www.gov.scot/Topics/marine/Publications/stats/FishFarmProductionSurveys>). However, salmon is a special case, and data is not available for other finfish species and is deemed unobtainable for mussels and hatchery stages of most species. The issues around gathering and expressing finfish mortality data as an indicator have been discussed (<http://www.ncbi.nlm.nih.gov/pubmed/21922247>).
- UK finfish farmers are required to report escape events and the estimated number of escapees. Data is collated and published for Scotland (<http://www.gov.scot/Topics/marine/Publications/stats/FishFarmProductionSurveys>) but not the rest of the UK. Available data reflects recognised escape events and not potential trickle losses.

4.5 What can we do to collect info on production of new species?

Croatia

For a relatively small aquaculture production in Croatia, it would be a problem due to the data confidentiality. In order not to display data, even as an aggregated value, when a segment contains less than three companies, it would lead to the same result.

Denmark

You can let the DCF data collection be open to new species. As long as the segmentation by production method is maintained and FAO codes are used for reporting of the new species, this should be possible.

Estonia

Current data collection procedure in Estonia would also include information from new farms with new species, since all enterprises are contacted. On the other hand it could raise confidentiality issues regarding economic data

Finland

The introduction of new species is probably controlled by fish health authorities, who might have information on the imports of new species. The production of new species could be quite easily be asked in the production inquiry and for Finland, this information is basically included.

France

At first development level, only few enterprises may be interested in producing new species. This will probably lead to a statistical confidentiality situation. Development of new species rearing could be first mentioned in the technical report, waiting for production to reach a minimum threshold before data collection is introduced.

Ireland

Currently the MS has put all such data into the last right hand segment column for finfish and shellfish in the upload template. Therefore information on individual Spp/culture is lost in a mix designed to protect confidential data of the single or very low numbers of entities engaged in a new Spp/culture. Such overall data only adds to the overall accuracy of the national economic picture in a relatively small way as new Spp. enterprises are normally start- up ones. It may be that the most sensitive financial variables may remain inaccessible due to confidentiality rights while such enterprises may be willing to share production data. This MS has found that to be the case.

Latvia

The new species have negligible weight and value in the total share of aquaculture production. If the aquaculture production amount for the new species will increase significantly the data will be collected in the annual bases.

Lithuania

Including new species into the statistical data is only possible if these new species are already popular in more than several MS and data is worthwhile to collect. Inclusion of data only because it is a new species will result in unusable data in terms of confidentiality and comparability among MS.

Poland

Data on the volume and value of production of all species, including new species, are collected under Public Statistical Programme (RRW-22 questionnaire).

Last year Poland established a special electronic registry for production of new species.

Portugal

Portugal considers that from the time when a new species is authorized, production information must be collected from the establishment.

Slovenia

The data collection procedure in Slovenia includes information about new species, since all enterprises are contacted. When the new species enter into production, the volume of the production is usually very small, so we can have confidentiality problems.

At the EU level, if some new species introduced in the future account for a significant part of EU production volume and/or value (eg. Tilapias), then revising particular legislation (Appendix XI, Commission decision 949/2008) will be in order.

One possibility is to include information about new species into the aquaculture data call on a voluntary basis. Consequently, new species can be mentioned in the Aquaculture report – national chapter.

Spain

We are collecting data for new species: microalgae, some invertebrates. The same questionnaires are applied to all the establishments, even those with new species.

Sweden

We can of course collect data about every species, experimentally farmed or not. The largest change would be on report levels. What to report, which topics are interesting. Should we start reporting when production reaches some type of threshold? I don't see the collection as problematic. It is more of a regulatory change, of reporting aquaculture and so on.

United Kingdom

Encourage and facilitate data capture within Eurostat (rather than DCF).

- New species will by definition have a low production and value, and therefore do not merit inclusion in DCF. Nevertheless, it is important that basic data on emerging species are captured, and Eurostat is viewed as the appropriate repository for such information. Eurostat therefore needs to ensure that there are no thresholds on reported production volumes.
- Equally important as new species is the uptake by the industry of new and emerging systems/ techniques, e.g. recirculation aquaculture systems (RAS), integrated multi-trophic aquaculture (IMTA). Eurostat needs to be able to capture data on such systems.

Appendix 1. Terms of references

Terms of Reference of the Workshop on Aquaculture Data Collection

1. Requirements of the data call and quality checks – major issues faced and possible improvements.
2. Definition of primary activity and how it applied by MSs.
3. Defining the criteria for the allocation of enterprises to the particular aquaculture segments in cases when few different techniques are used and/or different fish species are produced.
4. Harmonisation of conversion indexes used for estimation of weight of sales of hatcheries and nurseries production from the number of fry for each species and their age rate.
5. Evaluation of possibility to collect data for Eurostat and DCF through the same data collection system and questionnaire allowing for the gradual alignment of the Eurostat and DCF data collection systems.
6. Evaluation of STECF-15-01 suggestion that DCF data collection should be confined to commercial production and/or appropriate thresholds should be implemented as it is proposed in fisheries. Group should also consider that there is a need to have information on the production of new species, as there is special support for this kind of activities in the EFF and EMFF, which needs data for assessment.
7. Expected amendment and extension of Aquaculture Data Collection in the future DCMAP.
 - a. extension of DCF to fresh water aquaculture.
 - b. segmentation allowing for the gradual alignment of the Eurostat and DCF segments (as per the outcome of the recent STECF EWG 15-01)
 - c. new variables

Evaluate the possibility of including in the MS collection exercise, information which enterprises are already obliged to record (may be that this data is already collected from the enterprises by another authority or it could be directly requested in the questionnaire). Specifically: (i) the quantity of veterinary medicinal products or other treatments administered to the animals (under Annex I, section III, point 8 of Regulation 852/2004 and Directive 200182/EC);(ii) the number of fish lost through mortalities during production (under Article 10 of Directive 2006/88/EC).

8. Other issues.

Appendix 2. Agenda of Workshop on Data Collection

Workshop on Aquaculture Data Collection **National Marine Fisheries Research Institute, ul. Kollątaja 1, 81-332 Gdynia,** **Poland**

Agenda

Start: Monday, June 15, 14:00

End: Friday, June 19, 13:00

Coffee breaks around 10:30, 16:30; lunch break around 12:30-14:00

Monday 14:00

- Welcome, housekeeping, introduction round, discussion of TORs and appointment of rapporteurs.
- Expected amendment and extension of Aquaculture Data Collection in the future DCMAP (presentation by DG MARE)
- Discussions and reflections by MS

Tuesday 9:00

- Possibilities to harmonize EUROSTAT and DCF data collections (based on STECF 15-01 recommendations) (presentation by EUROSTAT)
- Discussions
- Requirements of the data call, future changes and quality checks (presentation by Arina Motova, JRC)
- PGECON 2015 recommendations for changes in the future Aquaculture Data Call
- New codes and procedures
- Discussions

Tuesday 14:00

- Presentation of the threshold application in agriculture (FADN) and possibilities to stratify data using threshold in fisheries. (Arina Motova, JRC)
- Discussions

Wednesday 9:00

MS presentations of the national approaches taken in the topics related to the ToRs

- Definition of population and primary activity (application by MS)
- Coverage of current data collection system (freshwater included or not)
- Attribution of aquaculture enterprises with variable activities to the DCF segments
- Species produced in hatcheries and conversion indexes used for estimation of weight of sales from number of juveniles
- Description of national thresholds (if applied) in data collection.
- Organization the data collection system for Eurostat and for DCF by MS.

Wednesday 14:00

- Cont. with MS presentations

Thursday 9:00

- Working in the groups, producing the overview of the current situation related to the TOR2, ToR3, ToR4 and ToR6. Proposals for the best practice.

Thursday 14:00

- Continue working in the groups if needed
- Plenary
- Discussion, conclusions (harmonisation?)
- Drafting the text of the report.

Friday 9:00 – 13.00

- Report draft/final
- AOB

Appendix 3. List of Participants

Aquaculture WS participants	MS	e-mail
Arina Motova	JRC	arina.motova@jrc.ec.europa.eu
CALVO SANTOS Angel Andres	DG MARE	Angel-Andres.CALVO-SANTOS@ec.europa.eu >
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Marc Chauviere	FR	marc.chauviere@developpement-durable.gouv.fr
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Michael Brogaard	DK	MIB@dst.dk
Vedran Kolarić	HR	Mr Vedran Kolarić (vedran.kolaric@mps.hr) for Croatia
Andrius Linauskas	LT	andrius.linauskas@vic.lt
Andrei Baikov	EE	Andrei.Baikov@envir.ee
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Edo Avdič	SI	Edo.Avdic@zzrs.si
Madelene Wetterskog	SE	Madelene.Wetterskog@jordbruksverket.se >
Susana Godinho	PT	sgodinho@dgrm.mam.gov.pt
Cristina Borges	PT	cborges@dgrm.mam.gov.pt
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Malgorzata Kieliszewska	PL/NMFRI	mkieliszewska@mir.gdynia.pl
Zbigniew Karnicki	PL/NMFRI	zkarnicki@mir.gdynia.pl
Bartłomiej Przesmycki	PL/MARD	B.Przesmycki@minrol.gov.pl
Leszek Myszkowski	PL/IFI	lmyszkowski@infish.com.pl

Appendix 4. Presentations of DGMARE, Eurostat and JRC representatives

Minimum requirements to open presentations: Office 2010. Please click twice on the slide to open a presentation. Furthermore all documents are in a WS Shared Folder.

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OUTLINE

- 1) Some policy uses of DCF aquaculture data: Annual Economic Report.
- 2) Reflections for EU DCMAP.
- 3) Questions for which we need technical advice.



1

DG MARE
Directorate-General for Maritime
Affairs and Fisheries



Possibilities to harmonise EUROSTAT and DCF data collections

Based on STECF 15-01 recommendations

AQ data coll. workshop, Gdynia, 18/06/15
Friderike Oehler (Eurostat)



Aquaculture data call

Arina Motova



www.jrc.ec.europa.eu

*Serving society
Stimulating innovation
Supporting legislation*

Joint
Research
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The Farm Accountancy Data Network (FADN) for the impacts of the Common Agricultural Policy in agriculture

Arina Motova



www.jrc.ec.europa.eu

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Supporting legislation*

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Appendix 5. Proposed codes for the economic variables and segments names

Table 1. Variable codes for the aquaculture data call, units to be requested and template name

variable_name	Proposed codes	Units	Template
Total income	inc	EURO	Income
Turnover	tur	EURO	Income
Subsidies	dirsub	EURO	Income
Other income	otherinc	EURO	Income
Wages and salaries	wage	EURO	Costs
Imputed value of unpaid labour	unpaidlab	EURO	Costs
Energy costs	enercost	EURO	Costs
Raw material costs: Feed costs	rmfeedcost	EURO	Costs
Raw material costs: Livestock costs	rmlivcost	EURO	Costs
Repair and maintenance	repcost	EURO	Costs
Other operational costs	othopcost	EURO	Costs
Depreciation of capital	depcost	EURO	Costs
Debt	debt	EURO	Capital
Net Investments	invest	EURO	Capital
Total value of assets	dephist	EURO	Capital
Total employees	job	NUMBER	Employment
Female employees	jobf	NUMBER	Employment
Male employees	jobm	NUMBER	Employment
FTE	fte	NUMBER	Employment
Female FTE	ftf	NUMBER	Employment
Male FTE	ftem	NUMBER	Employment
Number of enterprises <=5 employees	ent1	NUMBER	Structure
Number of enterprises 6-10 employees	ent2	NUMBER	Structure
Number of enterprises >10 employees	ent3	NUMBER	Structure
Raw material volume: Feed	rmfeedwg	KG	Production
Raw material volume: Livestock	rmlivewg	KG	Production
Total sales volume	salewg	KG	Production
Sales production	salewvsp	KG	Production by species
Turnover production	turvsp	EURO	Production by species

Table 2. Codes for the aquaculture data call, segments names

Current code in DB	Segment name	Proposed codes		
		Technique	Species group	New segment code
seg1_1	Salmon Hatcheries & nurseries	han	Salm	salm_han
seg1_2	Salmon on growing	ong	Salm	salm_ong
seg1_3	Salmon combined	com	Salm	salm_com
seg1_4	Salmon cages	cag	Salm	salm_cag
seg10_1	Other shellfish rafts	raf	Oths	oths_raf
seg10_2	Other shellfish Long line	lln	Oths	oths_lln
seg10_3	Other shellfish Bottom	bot	Oths	oths_bot
seg10_4	Other shellfish Other	oth	Oths	oths_oth
seg2_1	Trout Hatcheries & nurseries	han	Trot	trot_han
seg2_2	Trout on growing	ong	Trot	trot_ong
seg2_3	Trout combined	com	Trot	trot_com
seg2_4	Trout cages	cag	Trot	trot_cag
seg3_1	Sea bass & Sea bream Hatcheries & nurseries	han	Sbsb	sbsb_han
seg3_2	Sea bass & Sea bream on growing	ong	Sbsb	sbsb_ong
seg3_3	Sea bass & Sea bream combined	com	Sbsb	sbsb_com
seg3_4	Sea bass & Sea bream cages	cag	Sbsb	sbsb_cag
seg4_1	Carp Hatcheries & nurseries	han	Carp	carp_han
seg4_2	Carp on growing	ong	Carp	carp_ong
seg4_3	Carp combined	com	Carp	carp_com
seg4_4	Carp cages	cag	Carp	carp_cag
seg5_1	Other freshwater fish Hatcheries & nurseries	han	Othf	othf_han
seg5_2	Other freshwater fish on growing	ong	Othf	othf_ong
seg5_3	Other freshwater fish combined	com	Othf	othf_com
seg5_4	Other freshwater fish cages	cag	Othf	othf_cag
seg6_1	Other marine fish Hatcheries & nurseries	han	Othm	othm_han
seg6_2	Other marine fish on growing	ong	Othm	othm_ong
seg6_3	Other marine fish combined	com	Othm	othm_com
seg6_4	Other marine fish cages	cag	Othm	othm_cag
seg7_1	Mussel rafts	raf	Muss	muss_raf
seg7_2	Mussel Long line	lln	Muss	muss_lln
seg7_3	Mussel Bottom	bot	Muss	muss_bot
seg7_4	Mussel Other	oth	Muss	muss_oth
seg8_1	Oyster rafts	raf	Oyst	oyst_raf
seg8_2	Oyster Long line	lln	Oyst	oyst_lln
seg8_3	Oyster Bottom	bot	Oyst	oyst_bot
seg8_4	Oyster Other	oth	Oyst	oyst_oth
seg9_1	Clam rafts	raf	Clam	clam_raf

Table 2. Codes for the aquaculture data call, segments names

		Proposed codes		
Current code in DB	Segment name	Technique	Species group	New segment code
seg9_2	Clam Long line	lln	Clam	clam_lln
seg9_3	Clam Bottom	bot	Clam	clam_bot
seg9_4	Clam Other	oth	Clam	clam_oth
tot	National Totals	all	All	tot

Appendix 6. Presentations of Member States

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Workshop on Aquaculture Data Collection



Croatia

Danish aquaculture industry

Overwiev 2013

Aquaculture Data Collection in Estonia

Andrei Baikov, NC at Estonian Ministry of Environment
2015, Gdynia

Aquaculture data collection in Finland

Anssi Ahvonen & Heidi Pokki
Natural Resource Institute Finland (Luke)

© Natural Resources Institute Finland



**Workshop on Aquaculture data collection
15-19 of June 2015**

~ ~ ~
FRANCE



MARC CHAUVIERE
(DPMA - BSPA)



VÉRONIQUE LE BIHAN
(LEMNA - UNIVERSITÉ DE NANTES)

~ ~ ~

SZÉCHENYI 2020



Európai Unió



MINISZTERELNÖKSÉG

**DATA
COLLECTION
IN HUNGARY**

June 2015

Irish Aquaculture 2010 to 2014

Structure: 253 enterprises, 278 production units (basic statistical unit), down from 280 enterprises and 303 units.

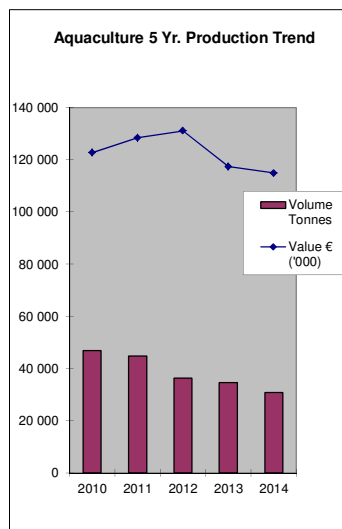
Industry profile is diverse and fragmented. Majority of operations are small, family run, one production unit, entities. Licences are granted to operators for a 10 year period.

Main Species/Culture: Salmon Cages, Rainbow Trout, Oyster trestles, suspended and bottom mussels.
Native oysters, clam, scallop, urchins abalone perch and char also farmed.

Primarily Marine based with trout, perch, char and smolt hatcheries making up Irish freshwater Aquaculture.

Production volume overall over the period has declined from just under 47,000 tonnes to 30,800 tonnes. Unit value increase initially was strong enough to raise harvest value until 2013 when dropping volumes forced overall value to €116 million for 2014.

Employment has remained steady for the period overall with losses in the mussel and salmon sectors offset by employment increases in the oyster sectors. FTE has wavered between 940 and 960



COUNCIL REGULATION 199/2008

Data Collection Framework (DCF)

ITALY

Presentation of the national approaches taken in the topics related the toRs

Workshop on Aquaculture Data Collection Gdynia ,Poland, 15-19 June 2015

By

Eraldo Rambaldi – Adriano Mariani (UNIMAR) – Maria Cozzolino (NISEA)

1

Data Collection for Latvian Aquaculture Sector

Irina Davidiuk
Ruta Medne
Fish Resources Research Department
(Institute BIOR)



**State Enterprise Agricultural Information
and Rural Business Centre**

Lithuanian aquaculture sector data

Presenter:
Andrius Linauskas

2015

Workshop on Aquaculture Data Collection-

Poland June 2015

MALTA



Poland's approaches to the Aquaculture Data Collection

Gdynia, 15-19 June 2015

Barbara Pieńkowska



www.nmfri.gdynia.pl

Workshop on Aquaculture

-Data Collection-

Gdynia, June/2015

Divisão de Aquicultura – Cristina Borges (cborges@dgm.mam.gov.pt)

Divisão de Programas e Estatística – Susana Godinho (sgodinho@dgm.mam.gov.pt)



Slovenian aquaculture industry



Fisheries
Research Institute
of Slovenia

• WORKSHOP ON AQUACULTURE DATA COLLECTION

UK National approach to Aquaculture Statistics

Tim Ellis

- Research biologist: aquaculture, data handling, statistical analyses, report writing.
- But no economics background
- 2014: started aquaculture statistics
 - DCF (2012 data) – just data submission & STECF EWG
 - Eurostat collation & submission (2013 data)
- 2015:
 - expanded DCF role: data collection & collation (2013 data)

Cefas, Weymouth

- Centre for Environment, Fisheries & Aquaculture Science
- Government Agency – monitoring, research, regulation
- 2 labs
 - Weymouth – aquaculture - Fish Health Inspectorate, bivalve food safety
 - Lowestoft (main lab) – environment and fisheries

Appendix 7. Conversion factors

MS	Species code	Species name	Latin name	Fish farming techniques	Year class	Age (months)	Weight class (g)	Conversion Index	Measure	Restocking or sale	Comments
LV	TRS	Sea trout	<i>Salmo trutta</i>		0+	up to 3	2 to 5	2,4	unit	restocking programme	
LV	TRS	Sea trout	<i>Salmo trutta</i>		1	12 to 13	up to 14	10,9	unit	restocking programme	
LV	TRS	Sea trout	<i>Salmo trutta</i>		1 smolt	12 to 13	at least 15	21,2	unit	restocking programme	
LV	TRS	Sea trout	<i>Salmo trutta</i>		2 smolt	24 to 25	at least 35	58,3	unit	restocking programme	
LV	SAL	Atlantic salmon	<i>Salmo salar</i>		0+	2 to 3	2 to 8	6,8	g/unit	restocking programme	
LV	SAL	Atlantic salmon	<i>Salmo salar</i>		1	12 to 13	up to 18	12,3	g/unit	restocking programme	
LV	SAL	Atlantic salmon	<i>Salmo salar</i>		1 smolt	12 to 13	more than 18	28,8	g/unit	restocking programme	
LV	LAR	River lamprey	<i>Lampetra fluviatilis</i>		0	0	fry	no conversation index	unit	restocking programme	
LV	PLN	European whitefish	<i>Coregonus laveratus</i>		0+	4	at least 2	3,9	unit	restocking programme	
LV	VIV	Vimba bream	<i>Vimba vimba</i>		0+	3 to 4	at least 0.8	1,1	unit	restocking programme	
LV	FPI	Northern pike	<i>Esox lucius</i>		0+	1 to 6	fry	no conversation index	unit	restocking programme	
LV	ELE	European eel	<i>Anguilla anguilla</i>		0 +		fry	no conversation index	unit	restocking programme	
LV	FVE	Vendace	<i>Coregonus albula</i>		1 +			no conversation index	unit	restocking programme	
LV	FPP	Pike-perch	<i>Sander lucioperca</i>		0+	1	more than 2	1,4	unit	restocking programme	
LV	FPI	Northern pike	<i>Esox lucius</i>		1 to 3	12 to 36			g/unit	sale	
LV	FPI	Northern pike	<i>Esox lucius</i>		1 to 2 to 3		20 to 2000		g/unit	sale	
LV	FCP	Common carp	<i>Cyprinus carpio</i>		0+	2	3 to 5		g/unit	sale	
LV	FCP	Common carp	<i>Cyprinus carpio</i>		0+	5	25 to 100		g/unit	sale	
LV	FCP	Common carp	<i>Cyprinus carpio</i>		1+	10 to 14	200 to 500		g/unit	sale	
LV	FCP	Common carp	<i>Cyprinus carpio</i>		2+	30	300 to 800		g/unit	sale	
LV	FCP	Common carp	<i>Cyprinus carpio</i>		3+	42	500 to 1300		g/unit	sale	
LV	CGO	Goldfish	<i>Carrasius auratus</i>		0+	2	5 to 15		g/unit	sale	
LV	CGO	Goldfish	<i>Carrasius auratus</i>		1+	10 to 14	200 to 300		g/unit	sale	

MS	Species code	Species name	Latin name	Fish farming techniques	Year class	Age (months)	Weight class (g)	Conversion Index	Measure	Restocking or sale	Comments
LV	CGO	Goldfish	<i>Carrasius auratus</i>		2+	30	300 to 400		g/unit	sale	
LV	CGO	Goldfish	<i>Carrasius auratus</i>		3+	42	300 to 400		g/unit	sale	
LV	SVC	Silver carp	<i>Hypophthalmichthys molitrix</i>		0+	4 to 5			g/unit	sale	
LV	BIC	Bighead carp	<i>Hypophthalmichthys nobilis</i>		0+	4 to 5			g/unit	sale	
LV	FCG	Grass carp	<i>Ctenopharyngodon idellus</i>		0+	2			g/unit	sale	
LV	FCG	Grass carp	<i>Ctenopharyngodon idellus</i>		1+	10 to 14			g/unit	sale	
LV	FCG	Grass carp	<i>Ctenopharyngodon idellus</i>		2+	30			g/unit	sale	
LV	FCG	Grass carp	<i>Ctenopharyngodon idellus</i>		3+	42			g/unit	sale	
LV	FBM	Freshwater bream	<i>Abramis brama</i>		0+	2	2 to 10		g/unit	sale	
LV	FBM	Freshwater bream	<i>Abramis brama</i>		1+	10 to 14			g/unit	sale	
LV	FBM	Freshwater bream	<i>Abramis brama</i>		2+	30			g/unit	sale	
LV	FBM	Freshwater bream	<i>Abramis brama</i>		3+	36			g/unit	sale	
LV	FTE	Tench	<i>Tinca tinca</i>		0+	5	5 to 20		g/unit	sale	
LV	FTE	Tench	<i>Tinca tinca</i>		1+	10 to 14	100 to 300		g/unit	sale	
LV	FTE	Tench	<i>Tinca tinca</i>		2+	30	250 to 500		g/unit	sale	
LV	FTE	Tench	<i>Tinca tinca</i>		3+	36	450 to 700		g/unit	sale	
LV	FTE	Tench	<i>Tinca tinca</i>		4+	48	450 to 1000		g/unit	sale	
LV	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		0	1	10 to 100		g/unit	sale	
LV	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		0+	4 to 8	250 to 500		g/unit	sale	
LV	STU	Sturgeons	<i>Acipenseridae</i>						g/unit	sale	
EE	SAL	Atlantic salmon	<i>Salmo salar</i>		0	0		0.167	g/unit	restocking programme	
EE	SAL	Atlantic salmon	<i>Salmo salar</i>		0+	...		5.78	g/unit	restocking programme	
EE	SAL	Atlantic salmon	<i>Salmo salar</i>		1	12		10.2	g/unit	restocking programme	
EE	SAL	Atlantic salmon	<i>Salmo salar</i>		2	24		78.2	g/unit	restocking programme	
FR	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>				[0 to 50]	16,00	g / unit		
FR	TRS	Sea trout	<i>Salmo trutta</i>				[0 to 50]	6,00	g / unit		
FR	SLX	Salmonoids nei	<i>Salmoidei</i>				[0 to 50]	11,00	g / unit		
FR	STU	Sturgeons nei	<i>Acipenseridae</i>				[0 to 50]	20,00	g / unit		
FR	BSS	European seabass	<i>Dicentrarchus labrax</i>				[0 to 50]	3,00	g / unit		
FR	SBG	Gilthead seabream	<i>Sparus aurata</i>				[0 to 50]	3,00	g / unit		

MS	Species code	Species name	Latin name	Fish farming techniques	Year class	Age (months)	Weight class (g)	Conversion Index	Measure	Restocking or sale	Comments
FR	TUR	Turbot	<i>Psetta maxima</i>				[0 to 50]	3,00	g / unit		
FR	MGR	Meagre	<i>Argyrosomus regius</i>				[0 to 50]	4,00	g / unit		
FR	OYG	Pacific cupped oyster	<i>Crassostrea gigas</i>				less than 10	0,25	g / unit		
FR	OYF	European flat oyster	<i>Ostrea edulis</i>				less than 10	0,25	g / unit		
FR	MUS	Blue mussel	<i>Mytilus edulis</i>				less than 5	0,15	g / meter of rope		
FR	MSM	Mediterranean mussel	<i>Mytilus galloprovincialis</i>				less than 5	0,15	g / meter of rope		
FI	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>					0,014	kg/unit		Kirjolohi
FI	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>				20 to 200	0,061	kg/unit		Kirjolohi
FI	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>				200 to 1000	0,476	kg/unit		Kirjolohi
FI	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>				over 1000	1,538	kg/unit		Kirjolohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				less than 20	0,007	kg/unit		Lohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				20 to 200	0,057	kg/unit		Lohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				over 200	0,500	kg/unit		Lohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				less than 20	0,009	kg/unit		Järvilohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				20 to 200	0,069	kg/unit		Järvilohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				200 to 600	0,327	kg/unit		Järvilohi
FI	SAL	Atlantic salmon	<i>Salmo salar</i>				over 600	0,956	kg/unit		Järvilohi
FI	TRS	Sea trout	<i>Salmo trutta</i>				less than 50	0,015	kg/unit		Meritaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				50 to 200	0,106	kg/unit		Meritaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				200 to 600	0,297	kg/unit		Meritaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				over 600	1,262	kg/unit		Meritaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				less than 50	0,011	kg/unit		Järvi- ja purotaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				50 to 200	0,098	kg/unit		Järvi- ja purotaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				200 to 600	0,324	kg/unit		Järvi- ja purotaimen
FI	TRS	Sea trout	<i>Salmo trutta</i>				over 600	1,018	kg/unit		Järvi- ja purotaimen
FI	CHR	Chars nei	<i>Salvelinus spp</i>				less than 50	0,014	kg/unit		Nieriä

MS	Species code	Species name	Latin name	Fish farming techniques	Year class	Age (months)	Weight class (g)	Conversion Index	Measure	Restocking or sale	Comments
FI	CHR	Chars nei	Salvelinus spp				over 50	0,372	kg/unit		Nieriä
FI	PLN	European whitefish	Coregonus lavaretus				less than 20	0,009	kg/unit		Siika
FI	PLN	European whitefish	Coregonus lavaretus				20 to100	0,065	kg/unit		Siika
FI	PLN	European whitefish	Coregonus lavaretus				over 100	0,150	kg/unit		Siika
FI	TLV	Grayling	Thymallus thymallus				less than 20	0,005	kg/unit		Harjus
FI	TLV	Grayling	Thymallus thymallus				over 20	0,025	kg/unit		Harjus
FI	FPP	Pike-perch	Sander lucioperca				all size classes	0,003	kg/unit		Kuha
FI	FPI	Northern pike	Esox lucius				all size classes	0,002	kg/unit		Hauki
FI	FCY	Cyprinids nei	Cyprinidae				all size classes	0,050	kg/unit		Särki
FI	OTHERS						all size classes	0,050	kg/unit		Muut lajit
UK	OYF	European flat oyster	Ostrea edulis		0	spat		1,00	g/individual		
UK	OYG	Pacific cupped oyster	Crassostrea gigas		0	spat		1,00	g/individual		
UK	SAL	Atlantic salmon	Salmo salar		0	ova		0,16	g/unit		
UK	SAL	Atlantic salmon	Salmo salar		0/1	smolt		80,00	g/unit		
UK	TRR	Rainbow trout	Oncorhynchus mykiss		0	ova		0,10	g/individual		
UK	TRR	Rainbow trout	Oncorhynchus mykiss		0	fry		2,00	g/individual		
UK	TRR	Rainbow trout	Oncorhynchus mykiss		0	fingerling		25,00	g/individual		
UK	TRS	Sea trout	Salmo trutta		0	ova		0,08	g/individual		
UK	TRS	Sea trout	Salmo trutta		0	fry		2,00	g/individual		
UK	TRS	Sea trout	Salmo trutta		0	fingerling		25,00	g/individual		
PL	SAL	Atlantic salmon	Salmo salar		0+	fingerling		0,8	g/unit		
PL	SAL	Atlantic salmon	Salmo salar		unit 0+	fingerling		8	g/unit		
PL	SAL	Atlantic salmon	Salmo salar		1+	fingerling		10	g/unit		
PL	SAL	Atlantic salmon	Salmo salar		unit 1+; 2+	fingerling		70	g/unit		
PL	PTB	Barbel	Barbus barbus		0+	fingerling		2	g/unit		
PL	PTB	Barbel	Barbus barbus		unit 0+	fingerling		2,7	g/unit		
PL	PTB	Barbel	Barbus barbus		1+	fingerling		60	g/unit		
PL	SVF	Brook trout	Salvelinus fontinalis		0+	fingerling		0,8	g/unit		
PL	SVF	Brook trout	Salvelinus fontinalis		unit 0+	fingerling		10	g/unit		
PL	CHR	Chars nei	Salvelinus spp		unit 0+	fingerling		10	g/unit		
PL	LUH	Chub	Leuciscus cephalus		0+	fingerling		2	g/unit		
PL	LUH	Chub	Leuciscus cephalus		unit 0+	fingerling		2,6	g/unit		

MS	Species code	Species name	Latin name	Fish farming techniques	Year class	Age (months)	Weight class (g)	Conversion Index	Measure	Restocking or sale	Comments
PL	FCP	Common carp	<i>Cyprinus carpio</i>		0+	fingerling		2	g/unit		
PL	FCP	Common carp	<i>Cyprinus carpio</i>		unit 0+	fingerling		47,6	g/unit		
PL	FPE	European perch	<i>Perca fluviatilis</i>		0+	fingerling		2	g/unit		
PL	FPE	European perch	<i>Perca fluviatilis</i>		unit 0+	fingerling		22,4	g/unit		
PL	PLN	European whitefish	<i>Coregonus lavaretus</i>		unit 0+	fingerling		7,5	g/unit		
PL	PLN	European whitefish	<i>Coregonus lavaretus</i>		1+	fingerling		32,3	g/unit		
PL	FBM	Freshwater bream	<i>Abramis brama</i>		0+	fingerling		2	g/unit		
PL	FBM	Freshwater bream	<i>Abramis brama</i>		unit 0+	fingerling		2,6	g/unit		
PL	CGO	Goldfish	<i>Carassius auratus</i>		0+	fingerling		0,5	g/unit		
PL	CGO	Goldfish	<i>Carassius auratus</i>		unit 0+	fingerling		21,6	g/unit		
PL	FCG	Grass carp (=White amur)	<i>Ctenopharyngodon idellus</i>		0+	fingerling		1	g/unit		
PL	FCG	Grass carp (=White amur)	<i>Ctenopharyngodon idellus</i>		unit 0+	fingerling		34,7	g/unit		
PL	TLV	Grayling	<i>Thymallus thymallus</i>		unit 0+	fingerling		5	g/unit		
PL	TLV	Grayling	<i>Thymallus thymallus</i>		1+	fingerling		10,6	g/unit		
PL	HUC	Huchen	<i>Hucho hucho</i>		0+	fingerling		1,5	g/unit		
PL	HUC	Huchen	<i>Hucho hucho</i>		unit 0+	fingerling		10	g/unit		
PL	CLZ	North African catfish	<i>Clarias gariepinus</i>		unit 0+	fingerling		21,7	g/unit		
PL	FPI	Northern pike	<i>Esox lucius</i>		0+	fingerling		0,5	g/unit		
PL	FPI	Northern pike	<i>Esox lucius</i>		unit 0+	fingerling		120,2	g/unit		
PL	FID	Orfe (=Ide)	<i>Leuciscus idus</i>		0+	fingerling		2	g/unit		
PL	FID	Orfe (=Ide)	<i>Leuciscus idus</i>		unit 0+	fingerling		11,6	g/unit		
PL	FPP	Pike-perch	<i>Stizostedion lucioperca</i>		0+	fingerling		2	g/unit		
PL	FPP	Pike-perch	<i>Stizostedion lucioperca</i>		unit 0+	fingerling		10,4	g/unit		
PL	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		0+	fingerling		0,8	g/unit		
PL	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		unit 0+	fingerling		10	g/unit		
PL	FRO	Roach	<i>Rutilus rutilus</i>		0+	fingerling		2	g/unit		
PL	FRO	Roach	<i>Rutilus rutilus</i>		unit 0+	fingerling		11,5	g/unit		
PL	TRS	Sea trout	<i>Salmo trutta</i>		0+	fingerling		0,8	g/unit		
PL	TRS	Sea trout	<i>Salmo trutta</i>		unit 0+	fingerling		8	g/unit		
PL	TRS	Sea trout	<i>Salmo trutta</i>		1+	fingerling		10	g/unit		
PL	TRS	Sea trout	<i>Salmo trutta</i>		unit 1+; 2+	smolt		85	g/unit		
PL	SVC	Silver carp	<i>Hypophthalmichthys molitrix</i>		0+	fingerling		1	g/unit		
PL	SVC	Silver carp	<i>Hypophthalmichthys molitrix</i>		unit 0+	fingerling		47,4	g/unit		
PL	STU	Sturgeons nei	<i>Acipenseridae</i>		0+	fingerling		0,6	g/unit		
PL	STU	Sturgeons nei	<i>Acipenseridae</i>		unit 0+	fingerling		107,8	g/unit		
PL	FTE	Tench	<i>Tinca tinca</i>		0+	fingerling		0,2	g/unit		

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PL	FTE	Tench	<i>Tinca tinca</i>		unit 0+	fingerling		9,7	g/unit		
PL	TRO	Trouts nei	<i>Salmo spp</i>		0+	fingerling		1,5	g/unit		
PL	TRO	Trouts nei	<i>Salmo spp</i>		unit 0+	fingerling		10	g/unit		
PL	VIV	Vimba bream	<i>Vimba vimba</i>		0+	fingerling		1	g/unit		
PL	VIV	Vimba bream	<i>Vimba vimba</i>		unit 0+	fingerling		1,3	g/unit		
PL	VIV	Vimba bream	<i>Vimba vimba</i>		1+	fingerling		60	g/unit		Kroczek-Polish name
PL	SOM	Wels(=Som) Catfish	<i>Silurus glanis</i>		0+	fingerling		5	g/unit		
PL	SOM	Wels(=Som) Catfish	<i>Silurus glanis</i>		unit 0+	fingerling		60	g/unit		
PL	SOM	Wels(=Som) Catfish	<i>Silurus glanis</i>		1+	fingerling		50,7	g/unit		
MT	SBG	Sea Bream	<i>Sparus aurata</i>		1	18		not applicable	2 g/unit		hatching size 2 g
MT	BSS	Sea Bass	<i>Dicentrarchus labrax</i>		1	18		not applicable	2 g/unit		
MT	SWA	White Bream	<i>Diplodus sargus</i>		1	18		not applicable	2 g/unit		
MT	MGR	Meagre	<i>Argyrosomus regius</i>		1	18		not applicable	2 g/unit		
ES	SAL	Atlantic salmon	<i>Salmo salar</i>	Nursery		0		0,20	g/unit		Phases of fish farming according to the vital cycle of the species
ES	SAL	Atlantic salmon	<i>Salmo salar</i>	Hatchery		...		1,00	g/unit		Phases of fish farming according to the vital cycle of the species
ES	TRS	Sea trout	<i>Salmo trutta</i>	Nursery		2		0,20	g/unit		Phases of fish farming according to the vital cycle of the species
ES	TRS	Sea trout	<i>Salmo trutta</i>	Hatchery		3		50	g/unit		Phases of fish farming according to the vital cycle of the species
ES	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>	Hatchery		3		50	g/unit		Phases of fish farming according to the vital cycle of the species
ES	FCP	Common carp	<i>Cyprinus carpio</i>	Hatchery		3		10	g/unit		Phases of fish farming according to the vital cycle of the species
ES	FTE	Tench	<i>Tinca tinca</i>	Hatchery		3		100	g/unit		Phases of fish farming according to the vital cycle of the species
ES	ELE	European eel	<i>Anguilla anguilla</i>	Hatchery		3		10	g/unit		Phases of fish farming according to the vital cycle of the species
ES	BSS	European sea bass	<i>Dicentrarchus labrax</i>	Hatchery		3		10	g/unit		Phases of fish farming according to the vital cycle of the species
ES	AMB	Greater amberjack	<i>Seriola dumerili</i>	Hatchery		3		50	g/unit		Phases of fish farming according to the vital cycle of the species

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ES	MGR	Meagre	<i>Argyrosomus regius</i>	Hatchery		3		100	g/unit		Phases of fish farming according to the vital cycle of the species
ES	SBR	Black spot seabream	<i>Pagellus bogaraveo</i>	Hatchery		3		15	g/unit		Phases of fish farming according to the vital cycle of the species
ES	SBG	Gilthead seabream	<i>Sparus aurata</i>	Nursery		2			g/unit		Phases of fish farming according to the vital cycle of the species
ES	SBG	Gilthead seabream	<i>Sparus aurata</i>	Hatchery		3		15	g/unit		Phases of fish farming according to the vital cycle of the species
ES	OAL	Senegalese sole	<i>Solea senegalensis</i>	Nursery		2		0,10	g/unit		Phases of fish farming according to the vital cycle of the species
ES	OAL	Senegalese sole	<i>Solea senegalensis</i>	Hatchery		3		5	g/unit		Phases of fish farming according to the vital cycle of the species
ES	TUR	Turbot	<i>Psetta maxima</i>	Nursery		2		2	g/unit		Phases of fish farming according to the vital cycle of the species
ES	TUR	Turbot	<i>Psetta maxima</i>	Hatchery		3		50	g/unit		Phases of fish farming according to the vital cycle of the species
ES	AUP	White-clawed cryfish	<i>Austropotamobius pallipes</i>	Nursery		2		0,10	g/unit		Phases of fish farming according to the vital cycle of the species
ES	AUP	White-clawed cryfish	<i>Austropotamobius pallipes</i>	Hatchery		3		1	g/unit		Phases of fish farming according to the vital cycle of the species
ES	OYF	European flat oyster	<i>Ostrea edulis</i>	Hatchery		3		1	g/unit		Phases of fish farming according to the vital cycle of the species
ES	OYG	Pacific cupped oyster	<i>Crassostrea gigas</i>	Hatchery		3		1	g/unit		Phases of fish farming according to the vital cycle of the species
ES	MSM	Mediterranean mussel	<i>Mytilus galloprovincialis</i>	Hatchery		3		1	g/unit		Phases of fish farming according to the vital cycle of the species
ES	CTS	Pullet carpet shell	<i>Venerupis pullastra</i>	Nursery		2		0,2	g/unit		Phases of fish farming according to the vital cycle of the species
ES	CTS	Pullet carpet shell	<i>Venerupis pullastra</i>	Hatchery		3		0,2	g/unit		Phases of fish farming according to the vital cycle of the species

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ES	CTG	Groove carpet shell	<i>Ruditapes decussatus</i>	Hatchery		3		0,2	g/unit		Phases of fish farming according to the vital cycle of the species
ES	CLJ	Japanese carpet shell	<i>Ruditapes philippinarum</i>	Hatchery		3		0,2	g/unit		Phases of fish farming according to the vital cycle of the species
DK	TUR	Turbot	<i>Scophthalmus maximus</i>		1	12		0.05	g/unit		PGH','HLT','SAN','SKR
DK	PLN	European whitefish	<i>Coregonus lavaretus</i>		1	12		0.05	g/unit		
DK	FPP	Pike-perch	<i>Sander lucioperca</i>		1	12		0.05	g/unit		
DK	FLE	European flounder	<i>Platichthys flesus</i>		1	12		0.05	g/unit		
DK	FPE	European perch	<i>Perca fluviatilis</i>		1	12		0.10	g/unit		'ABR','LKS','BMS','OES
DK	SAL	Salmon	<i>Salmo salar</i>		1	12		0.10	g/unit		
DK	MUS	Blue mussel	<i>Mytilus edulis</i>		1	12		0.10	g/unit		
DK	CLX	Clam			1	12		0.10	g/unit		
DK	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		1	12		0.25	g/unit		
HR	ELE	Eel	<i>Anguilla anguilla</i>					not applicable			
HR	BSS	Sea bass	<i>Dicentrarchus labrax</i>					not applicable			
HR	SBG	Sea Bream	<i>Sparus aurata</i>					not applicable			
HR	BFT	Tuna	<i>Thunnus thynnus</i>					not applicable			
HR	HAD	Haddock	<i>Melanogrammus aeglefinus</i>					not applicable			
HR	TUR	Turbot	<i>Psetta maxima</i>					not applicable			
HR	COD	Cod	<i>Gadus morhua</i>					not applicable			
HR	MSM	Mussel	<i>Mytilus galloprovincialis</i>					not applicable			
HR	OYF	Oyster	<i>Ostrea edulis</i>					not applicable			
HR	TRR	Trout	<i>Oncorhynchus mykiss</i>					not applicable			
HR	FCP	Carp	<i>Cyprinus carpio</i>					not applicable			
PT	SBG	Gilthead seabream	<i>Sparus aurata</i>					not applicable			
PT	SOL	Common sole	<i>Solea solea</i>					not applicable			
IE	SAL	Atlantic salmon	<i>Salmo salar</i>		0+	1		0.20	g/individual		eyed ova
IE	SAL	Atlantic salmon	<i>Salmo salar</i>		0+	<12		20g average	g/individual		fry/parr
IE	SAL	Atlantic salmon	<i>Salmo salar</i>		S0-S1/2	<12		60g average	g/individual		smolt
IE	SAL	Atlantic salmon	<i>Salmo salar</i>		S1	>= 1		75g average	g/individual		smolt
IE	SAL	Atlantic salmon	<i>Salmo salar</i>		S1 1/2	> =18 months		90 g average	g/individual		smolt
IE	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		0+	1		0,10	g/individual		eyed ova
IE	TRR	Rainbow trout	<i>Oncorhynchus mykiss</i>		0+	<12		10 g average	g/individual		Fry
IE	CHR	Char Spp	<i>Salvelinus Spp.</i>		0+	1		0,08	g/individual		eyed ova
IE	CHR	Char Spp	<i>Salvelinus Spp.</i>		0+	<12		10 g average	g/individual		Fry

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IE	FPE	European Perch	<i>Perca fluviatilis</i>		0+	1		0,08	g/individual		eyed ova
IE	FPE	European Perch	<i>Perca fluviatilis</i>		0+	<12		10 g average	g/individual		Fry
IE	MUS	Blue mussel	<i>Mytilus edulis</i>		<1	<12		500 to 200 pieces / kg average	individuals/kg		seed
IE	CYG	Pacific Cupped oyster	<i>Crassostrea gigas</i>		<1	<12		< 1 g average	g/individual		seed
IE	CYO	Native oyster	<i>Ostrea edulis</i>		<1	<12		< 1 g average	g/individual		seed
IRL	SCE	King scallop	<i>Pecten maximus</i>		<1	<12		< 1 g average	g/individual		seed
IRL	CLM	Manilla clam	<i>Ruditapes Spp.</i>		<1	<12			g/individual		seed

